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[Continued on next page]

(54) Title: METHODS AND APPARATUS FOR IMPROVING NFC ACTIVATION AND DATA EXCHANGE REPORTING MECHANISMS

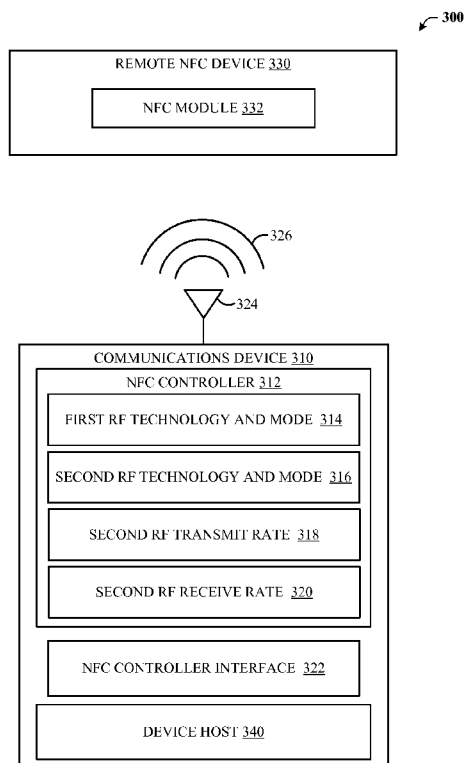


FIG. 3

(57) Abstract: Aspects disclosed herein relate to improving reporting NFC RF technology usage in activation and data exchange for a NFC device. In an example, with a NFC device a NFCC may be configured to obtain a first radio frequency (RF) technology and mode value, a second RF technology and mode value, and one or more RF specific parameters associated with a remote near field communication (NFC) device during an activation phase of a communication link using a first NFC RF technology. In an aspect, the one or more RF specific parameters and the first NFC RF technology may be based on the first RF technology and mode value. Further, the NFCC may be configured to configure communications to be supported by a second NFC RF technology for use during a data exchange phase of the communication link. In an aspect, the second NFC RF technology may be based on the second RF technology and mode value.



SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/040293

A. CLASSIFICATION OF SUBJECT MATTER
INV. G06K7/00 H04B5/00
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

H04B H04N G06K H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EP0-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	"Information technology Telecommunications and information exchange between systems Near Field Communication Interface and Protocol (NFCIP-1) = Technologies de l'information Telecommunications et echange d'information entre systemes Communication de champ proche Interface et protocole (NFCIP-1)", INTERNATIONAL STANDARD ISO/IEC, XX, XX, vol. 18092, no. 1st edition, 1 April 2004 (2004-04-01), page 66PP, XP007905654,	1-6,9, 10, 13-18, 21,22, 25-30, 33,34, 37-42, 45,46
Y	page 6 - page 12 page 34 - page 36	7,8,11, 12,19, 20,23, 24,31, 32,35, 36,43, 44,47,48
- / - -		

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

20 November 2012

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28/11/2012

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/040293

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of Item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-6, 9-18, 21-30, 33-42, 45-48

Setting up a near field communication link for data transmission

1.1. claims: 11, 12, 23, 24, 35, 36, 47, 48

Enabling power saving.

2. claims: 7, 8, 19, 20, 31, 32, 43, 44

Providing information aiding in the decision if a data transfer is to be done.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/040293

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	----- EP 2 063 380 A2 (GIESECKE & DEVRIENT GMBH [DE]) 27 May 2009 (2009-05-27)	11,12, 23,24, 35,36, 47,48
A	abstract paragraph [0007] - paragraph [0023] paragraph [0026] - paragraph [0050]	1-6,9, 10, 13-18, 21,22, 25-30, 33,34, 37-42, 45,46
Y	----- US 2003/074379 A1 (KEOHANE SUSANN MARIE [US] ET AL) 17 April 2003 (2003-04-17) paragraph [0005] - paragraph [0007]	7,8,19, 20,31, 32,43,44
A	----- EP 1 026 627 A1 (SIEMENS AG [DE]) 9 August 2000 (2000-08-09) paragraph [0013] - paragraph [0020] paragraph [0037] - paragraph [0042]	1-6, 9-18, 21-30, 33-42, 45-48
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A	----- EP 1 395 901 A2 (QUALCOMM INC [US]) 10 March 2004 (2004-03-10) figure 3 paragraph [0001] - paragraph [0024]	7,8,19, 20,31, 32,43,44
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2012/040293

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